

12. (Amended) A ball valve for handling very corrosive fluids and abrasive solid particles in a pressure leaching process, comprising:

AS
a valve body;

a ball centrally positioned in the valve body and having a central passage rotatable in the valve body between open and closed positions;

at least one seat disposed between the ball and the valve body;

wherein the ball and seat each comprise a titanium substrate and a titania coating.

20. (Amended) A pressure acid leaching process comprising alternately opening and closing the ball valve of claim 12 to respectively allow and stop passage of an acid leach mixture comprising abrasive particles in a solution of sulfuric acid at a temperature above 250°C and pressure above 4000 kPa.
- AB

[Please add claims 28 – 36.]

- AZ
28. (Added) The ball valve of claim 12 wherein the coating has a grain size less than 300 nm.
29. (Added) The ball valve of claim 12 wherein the coating has a grain size less than 100 nm.
30. (Added) The ball valve of claim 28 wherein the coating comprises a titania phase and a phase immiscible with the titania phase in a proportion effective to inhibit grain growth.
31. (Added) The ball valve of claim 30 wherein the immiscible phase comprises from 5 to 45 percent by volume of the coating.
32. (Added) The ball valve of claim 30 wherein the immiscible phase is selected from zirconia, tantalum oxide, boron carbide, silicon carbide, titanium carbide, diamond and combinations thereof.
33. (Added) The ball valve of claim 28 wherein the coating has a thickness from 100 to 500 microns.